REMARKS

Entry of the Amendment, reexamination, and further and favorable reconsideration of the subject application in light of the following remarks, pursuant to and consistent with 37 C.F.R. §§ 1.114 and 1.111, are thus respectfully requested.

1. Status of the Claims

The status of the claims following entry of the amendment is as follows:[1]

Claims canceled:	1-27 and 34-50
Claims pending:	28-33 and 51-52
Claims rejected:	28-33 and 51-52
Claims amended:	28-33
Claim newly added:	53

2. Support for the Amendments

Applicants (1) amend claims 28-30; and (2) newly introduce claim 53 to more precisely recite the claimed subject matter. Support for the amendments to claims 28-33 can be found at least from (1) previously presented claims 28-33; and (2) Examples 6-7 of the Specification. Support for new claim 53 can be found at least from the last sentence at ¶ [0022] of the Specification.[2] Applicants do not believe that the amendments add prohibited subject matter that is unsupported by the Specification as filed.

The claims have been amended without prejudice to, or disclaimer of, the canceled subject matter. Applicants reserve the right to file a continuation or divisional application on any subject matter canceled by way of amendments.

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[1] The Advisory Action mailed August 15, 2011 indicates that the Amendment / Response filed July 29, 2011 "will be entered" "***for purposes of appeal.***" Applicants have not filed a Notice of Appeal. Accordingly, the present amendment starts from the Amendment / Response filed March 11, 2011, which has been entered.

[2] "After the extraction step, settling, centrifugation and/or filtration may be performed in order to remove the solids; if desired, vitamin C (VC) may be added."

3. Withdrawn Objections and Rejections

Rejections and objections not reiterated stand withdrawn. *See* 37 C.F.R. § 1.113(b); M.P.E.P. §§ 706.07 and 707.07(e).

4. Rejection Under 35 U.S.C. § 112, second paragraph

The Office rejects claims 29, 32-33, and 51 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite. Office Action, page 3. The Office alleges that the recitation "passing the aqueous extract of tea leaves through the column filled with the activated charcoal in an amount at least 3 times greater than the capacity of the column" renders the claims indefinite. *Id.*

As amended, claim 29 recites *inter alia* "passing the aqueous liquid through the column in an amount at least 3 times greater than the capacity of the column." The Office indicated in the Advisory Action mailed August 15, 2011, that this amendment overcomes the indefiniteness rejection. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of the claims.

5. Rejection Under 35 U.S.C. § 103(a)

The Office rejects claims 28-33 and 51-52 under 35 U.S.C. § 103(a) as allegedly obvious over **Seto** et al., JP 08-109178 ("Seto") in view of **Green** et al., EP 0040712 ("Green"). Office Action, page 4.

Summary of the Claims Methods

The present inventors have newly identified a method to separate non-polymerized catechins from polymerized catechins in a mixture, for example, oolong tea. For this, the mixture is brought into contact with activated carbon at a temperature of 50°C or higher. This treatment selectively removes non-polymerized catechins from polymerized catechins. Accordingly, each of independent claims 28-30 recites *inter alia* contacting a tea-extract-containing liquid with an activated charcoal at a temperature of at least 50°C to selectively remove the non-polymerized catechins.

Grounds For Rejection

Seto allegedly teaches the following:

(1) dissolving 10 grams of green tea extract in 20 mL water and applying it to a glass column packed with 300 mL of a synthetic adsorbent SP-207;

(2) eluting the column with 1500 mL of a buffer solution at pH 10; and

(3) concentrating and dry the fraction.

Id., at 4-5. The Office admits that Seto does not "expressly disclose the temperature of the aqueous liquid as 50°C, or wherein the absorbent is activated charcoal." *Id.*, at 5.

Green allegedly teaches "a method of removing caffeine from coffee comprising contacting an aqueous solution of the coffee with activated carbon at a temperature of 60°C to 90°C." *Id.* Caffeine is allegedly absorbed on the activated carbon in Green's method. *Id.*

The Office apparently applies Green to cure Seto's deficiencies, asserting "[i]t would have been obvious at the time the invention was made to purify oolong tea [by combining Seto and Green], wherein an aqueous liquid comprising oolong tea extract is contacted with activated charcoal at a temperature of at least 50°C." *Id.*

In the Advisory Action mailed August 15, 2011, the Office further alleges the following:

1) a skilled artisan looking to remove caffeine would have looked to both Seto and Green, because the two references are directed towards removing caffeine;

2) there would have been a reasonable expectation of success in removing caffeine in Seto's tea by applying Green's methodology; and

3) the selective removal of non-polymerized catechins is an inherent property, which does not need to be recognized at the time.

Pages 3-5.

Arguments

Applicants traverse. "[O]bviousness requires a suggestion of ***all*** limitations in a claim." *CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342, 68 U.S.P.Q.2d 1940, 1947 (Fed. Cir. 2003). The Office must provide a rationale that a skilled artisan would have been directed to combined references. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418, 82 U.S.P.Q.2d 1385, 1396 (2007). To establish *prima facie* obviousness using a combination of multiple

references, the Office must show that the combination or modification must have had expected and predictable results. *See* M.P.E.P. § 2143. The Office's rejection is unsupported for at least the following reasons.

A. The Office fails to adduce *prima facie* obviousness, because the Office fails to justify combining Seto and Green as asserted

First, Applicants submit that a skilled artisan would not have been directed to combine Seto and Green. The Office alleges that a skilled artisan would have been directed to combine Seto and Green, ***because both references are directed to remove caffeine.*** This allegation is unsupported.

Seto in ¶ [0004] describes various methods to remove caffeine. For example, caffeine can be removed by (1) extracting with a chlorine solvent; (2) extracting with supercritical carbon dioxide; (3) adsorbing by activated carbon[3]; or (4) extracting with an acid aqueous solution. *See*, Seto, ¶ [0004]. Seto's method apparently provide another "simple, efficient, and safe means" to remove caffeine to obtain a low-caffeine tea polyphenol composition. *See*, Seto, ¶ [0006] and Abstract. The Office fails to explain why a skilled artisan would have been directed to further modify Seto's method, given that Seto's procedure has been shown to successfully achieve the objective. Even if it were assumed, *arguendo*, that a skilled artisan might have attempted to modify Seto's method, the Office fails to provide a rationale why a skilled artisan preferably would have chosen Green's method over other known methods, for example, those described in ¶ [0004] of Seto. The Office fails to articulate any reason for such a combination.

Furthermore, even if it were assumed, *arguendo*, that a skilled artisan might have attempted to modify Seto's method by removing caffeine form a tea extract with activated carbon, the Office fails to justify that the high temperature of Green (60 to 90 °C) would have been similarly applied. The Office alleges that both Seto and Green "are directed at providing a hot liquid extract." Advisory Action, page 4. ***This assertion is unsupported.*** Seto does ***not*** describe the temperature to process the tea extract. As to Green's temperature range, Applicants direct the Office to lines 21-30, at page 4 of Green:

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[3] Seto states that removal of caffeine "by adsorption with activated carbon or the like" is disclosed in "Japanese Patent Publication No. 1-45345." *See* Seto, ¶ [0004]. Applicants submit that Green is the counterpart of

> The temperature is preferably in the range 60 to 90°C. Lower temperatures are usually avoided as the risk of microbial growth, especially with long contact times, is increased, resulting in fermentation of the sugars present in the extract. In addition, the rate of caffeine diffusion from the beans decrease with temperature. Above 90°C, with long contact times, flavour may be impaired and as a practical matter it is difficult to maintain these temperatures without resort to pressurized equipment.

Based on Green's teachings, a skilled artisan would have understood that a high temperature is not necessary for caffeine removal. Instead, the high temperature is specifically designed for coffee extracts to primarily inhibit microbial contamination. A tea extract differs from a coffee extract. For example, coffee extracts do not contain catechins, which are present abundantly in tea extracts. *See* Abstract of Arts et al., 48 J. AGRIC. FOOD CHEM. 1752 (2000) (enclosed as **EXHIBIT II**). Accordingly, a skilled artisan would not have been directed to process a tea extract with activated carbon at the claimed temperature.

Applicants submit that the Office is not permitted in an obviousness analysis to "pick and choose among individual parts of assorted prior art references as a mosaic to recreate a facsimile of the claimed invention." *See AKZO N.V. v. United States Int'l Trade Comm'n*, 808 F.2d 1471, 1781, 1 U.S.P.Q.2d 1241, 1246 (Fed. Cir. 1986). Given the above arguments, a skilled artisan would not have been directed to combine Seto and Green. Green does not cure the defects of Seto, and thus the Office fails to adduce *prima facie* obviousness.

B. Given Seto's teaching away, a skilled artisan would have been discouraged to combine Seto and Green

Second, Applicants submit that Seto actually teaches away using Green's method (activated carbon treatment) to remove caffeine from tea extracts. A skilled artisan knowing both Seto and Green would have been discouraged to use activated carbon to treat a tea extract.

Seto in ¶ [0005] states the following:

> However, these methods have the respective problems. The extraction using a chlorine solvent has problems of safety and residue of the solvent containing chlorine and is also environmentally unpreferable. The extraction using supercritical carbon dioxide requires large-scale facilities and is hence expensive

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JP 1045345, because both applications claim the priority of U.S. Application Serial No. 06/153,904 (now U.S. Patent No. 4,495,210). *See* patent family information (enclosed as **EXHIBIT I**).

> in the initial cost and is also low in productivity. ***The adsorption with activated carbon or the like [JP 1045345 or Green][3] has disadvantages that tea polyphenol is also adsorbed together with caffeine that should be removed, and thereby the loss of tea polyphenol is large.***

(emphasis added). Given the above teaching, a skilled artisan would not have attempted to use activated carbon to remove caffeine from a tea extract, because the concurrent loss of polyphenols would be undesirable. Thus, Seto teaches away from using activated carbon as taught in Green to remove caffeine.

Given at least the above arguments, claims 28-30 are nonobvious over cited references. Dependent claims 31-33 and 51-53 are likewise nonobvious for at least the same reasons. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of the claims.

CONCLUSION

In view of the above arguments and amendments to the claims, Applicant submits that the claims are in condition for allowance and respectfully request reconsideration and timely allowance of the claims.

Should the Office have any questions or comments regarding Applicant's amendments or response, please contact Applicant's undersigned representative at (202) 230-5119. Furthermore, please direct all correspondence to the below-listed address.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573. This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully Submitted,

Date: November 16, 2011 By: _____

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EXHIBIT I

patent family information for EP 0040712

Bibliography

DWPI Title
Decaffeinating aq. green coffee bean extracts by treatment with neutral activated carbon

Original Title
Process for the removal of caffeine from green coffee and process for the recovery of caffeine

Assignee/Applicant
Standardized: **SOCIETE DES PRODUITS NESTLE S.A,**
Original: SOCIETE DES PRODUITS NESTLE S.A., 1800 Vevey, CH

Inventor
Green David, CH 1373 Chavornay, CH Blanc Maurice, CH 1110 Morges, CH

Publication Date (Kind Code)
1989-04-19 (B2)

Application Number / Date
EP1981103266A / 1981-04-30

Priority Number / Date / Country
US1980153904A / 1980-05-28 / US
EP1981103266A / 1981-04-30 / EP

Abstract

Abstract

Decaffeination of green coffee beans with an aque-ous medium, whereby caffeine is removed from the aqueous medium which also contains non-caffeine green coffee solids, by adsorption with substantially neutral active carbon. Thereafter the medium may be recycled to extract further amounts of caffeine from the same or another batch of green coffee beans.

Classes/Indexing

IPC
IPC Code(1-7) **A23F 5/20** C07D 473/12
(4)

Current IPC-R	Invention	Version	Additional	Version
Advanced	A23F 5/16 A23F 5/20 A23F 5/22 B01J 20/20 C07D 473/12	20060101 20060101 20060101 20060101 20060101	-	-
Core	-	-	-	-
Subclass	-	-	-	-

Original IPC-R	Invention	Version	Additional	Version
Advanced	A23F 5/20 A23F 5/22 C07D 473/12	20060101 20060101 20060101	-	-
Core	A23F 5/00 C07D 473/00	20060101 20060101	-	-
Subclass	-	-	-	-

ECLA
A23F 5/20H A23F 5/22B C07D 473/12 M07D 473/12

DWPI Manual Codes

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Legal Status

INPADOC Legal Status

Gazette Date	Code	Description
2001-05-31	REG -	REFERENCE TO A NATIONAL CODE CH PL PATENT CEASED
2001-04-29	PG25 -	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO LAPSE BECAUSE OF EXPIRATION OF PROTECTION LI 2001-04-29
2001-04-29	PG25 -	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO LAPSE BECAUSE OF EXPIRATION OF PROTECTION CH 2001-04-29
2000-04-27	PGFP +	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE CH
2000-04-11	PGFP +	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE FR
1999-02-01	EUG -	SE: EUROPEAN PATENT HAS LAPSED 81103266.3
1999-01-04	NLV4 -	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE 1998-11-01
1998-11-01	PG25 -	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES NL 1998-11-01
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1998-05-01	PG25 -	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES SE 1998-05-01
1998-04-30	PG25 -	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LU 1998-04-30
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1997-06-12	PGFP +	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE BE
1997-05-16	PGFP +	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE LU
1997-04-28	PGFP +	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE NL
1997-04-18	PGFP +	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE SE
1995-01-31	EAL +	SE: EUROPEAN PATENT IN FORCE IN SWEDEN 81103266.3
1994-05-06	EPTA +	LU: LAST PAID ANNUAL FEE
1990-04-30	ITTA	IT: LAST PAID ANNUAL FEE
1989-08-18	ET3 +	FR: TRANSLATION FILED ** DECISION CONCERNING OPPOSITION
1989-08-01	NLR3 +	NL: RECEIPT OF MODIFIED TRANSLATIONS IN THE NETHERLANDS LANGUAGE AFTER AN OPPOSITION PROCEDURE
1989-06-16	NLR2	NL: DECISION OF OPPOSITION
1989-04-19	AK +	DESIGNATED CONTRACTING STATES: EP 0040712 B2 BE; CH; FR; IT; LU; NL; SE
1989-04-19	27A +	MAINTAINED AS AMENDED 1989-04-19
1988-07-22	ITF +	IT: TRANSLATION FOR A EP PATENT FILED SOCIETA' ITALIANA BREVETTI S.P.A.
1985-05-17	NLR1 -	NL: OPPOSITION HAS BEEN FILED WITH THE EPO Opponent: JACOBS INTERNATIONAL MANUFACTURING GMBH & CO. KG
1985-04-17	R26 -	OPPOSITION FILED (CORRECTION) 1985-01-08 Opponent: JACOBS INTERNATIONAL MANUFACTURING GMBH & CO. KG
1985-03-20	26 -	OPPOSITION FILED 1984-01-08 Opponent: JACOBS INTERNATIONAL MANUFACTURING GMBH & CO. KG

1984-07-06	ET +	FR: TRANSLATION FILED
1984-04-18	AK +	DESIGNATED CONTRACTING STATES: BE; CH; FR; IT; LI; LU; NL; SE
1983-12-22	ITF +	IT: TRANSLATION FOR A EP PATENT FILED SPADINI MARUSCO
1981-12-02	AK +	DESIGNATED CONTRACTING STATES: BE; CH; FR; IT; LU; NL; SE
1981-12-02	17P +	REQUEST FOR EXAMINATION FILED 1981-04-30

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Family

Family

INPADOC Family (36)

Publication Number	Publication Date	Inventor	Assignee/Applicant	Title
EP40712B2	1989-04-19	Green David	SOCIETE DES PRODUITS NESTLE S.A	Process for the removal of caffeine from green coffee and process for the recovery of caffeine
AT198102182A_	1983-08-15	GREEN DAVID	RPODUITS NESTLE S A SOC D	VERFAHREN ZUM ABTRENNEN VON KOFFEIN AUS EINER WAESSERIGEN LOESUNG
AT388487B_	1989-06-26	GREEN DAVID	NESTLE SA	VERFAHREN ZUM ABTRENNEN VON KOFFEIN AUS EINER WAESSERIGEN LOESUNG
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CA1162436A1	1984-02-21	GREEN DAVID	NESTLE SA	CAFFEINE ADSORPTION
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US4508743A_	1985-04-02	Green David	NESTLE SA	Caffeine adsorption
ZA198102953A_	1982-05-26	GREEN D	NESTLE SA	CAFFEINE ADSORPTION

Claims

Claims

Patentansprüche

1. Verfahren zum Abtrennen van Koffein aus einer wäßrigen Lösung, die aus gen Kaffeebohnen extrahiertes Koffein und koffeinfreie Feststoffe von grünem Kaffee enthält, bei welchem die Lösung mit Aktivkohle in Berührung gebracht wird und die Aktivkohle mit dem daran adsorbierten Koffein aus der wäßrigen Lösung mit verringertem Koffeingehalt abgetrennt wird, dadurch gekennzeichnet, daß die verwendete Aktivkohle eine neutralisierte Kohle ist, so daß, wenn sie in destilliertes Wasser eingetaucht wird, der pH-Wert des Wassers

weitgehend unverändert bleibt.

Expand All Claims (7)

Description

Description

Expand Description

Citations

Citation

Citing Patents (0)

Expand Cited Patents (6)

Cited Non-patents (0)

Other

Attorney / Agent
Andrae Steffen Dr., Patentanwälte Andrae Flach Haug Kneissl Bauer Schneider, Balanstrasse 55, 81541 München, DE, 00048953

Designated States
European patent: BE CH FR IT LI LU NL SE

EXHIBIT II

Abstract of Arts et al., 48 J. AGRIC. FOOD CHEM. 1752 (2000)

PubMed Search

Display Settings: Abstract

Performing your original search, ***catechin contents of foods commonly consumed in the***, in PubMed will ***9*** records.

J Agric Food Chem. 2000 May;48(5):1752-7.

Catechin contents of foods commonly consumed in The Netherlands. 2. Tea, w fruit juices, and chocolate milk.

Arts IC, van De Putte B, Hollman PC.

State Institute for Quality Control of Agricultural Products (RIKILT), Wageningen, The Netherlands.

Abstract

Catechins, compounds that belong to the flavonoid class, are potentially beneficial to human health. To enable ar epidemiological evaluation of catechins, data on their contents in foods are required. HPLC with UV and fluoresce detection was used to determine the levels of (+)-catechin, (-)-epicatechin, (+)-gallocatechin (GC), (-)-epigallocate (EGC), (-)-epicatechin gallate (ECg), and (-)-epigallocatechin gallate (EGCg) in 8 types of black tea, 18 types of r white wines, apple juice, grape juice, iced tea, beer, chocolate milk, and coffee. Tea infusions contained high leve catechins (102-418 mg of total catechins/L), and tea was the only beverage that contained GC, EGC, ECg, and E addition to (+)-catechin and (-)-epicatechin. Catechin concentrations were still substantial in red wine (27-96 mg/L low to negligible amounts were found in white wine, commercially available fruit juices, iced tea, and chocolate m Catechins were absent from beer and coffee. The data reported here provide a base for the epidemiological evalu the effect of catechins on the risk for chronic diseases.

PMID:10820090[PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms, Substances

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